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ABSTRACT

One of the simplest definitions of cost-benefit analysis states "ultimately, it is nothing more than a logical attempt to weigh the pros and cons of a decision" (Gramlich 1981). This definition highlights two issues: practitioners should be clear about what decisions will be made as a result of this analysis, and they need to decide how they will measure the pros and cons. Organizational considerations when soliciting partners for a cost-benefit analysis include the following: the need for cooperation of other departments, advantages to partners, need for commitment of time and resources, and need to provide partners with access to records. The following issues are related to culture and infrastructure: the total cost of training; cultural taboos related to sharing information on salary ranges; departmental attitude toward sharing proprietary, strategic, competitive, or sensitive internal data; and acquisition of financial information. The literature on benefit models does not provide a single all-purpose benefits model because of the complexity of valuing benefits and establishing benchmarks. Two steps must be taken before conducting a cost-benefit analysis study--assessment of the organization's culture and infrastructure and identification of potential partners from divisions within the company who are willing to support data collection. (Contains 13 references.) (YLB)

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# Assessing Corporate Culture and Infrastructure Before Undertaking Cost-Benefit Analysis

This is an article for training professionals who are interested in cost-benefit analysis but are concerned about the organizational issues involved in implementing this kind of analysis. Over the last seven years, dozens of articles on this topic have been written. Most of them focus on models or formulas for computing cost-benefit ratios or tell about success stories. This focus on models and formulas has generally overlooked implementation. This is a major omission because successfully deriving and calculating a cost-benefit formula is dependent on partnering with organizations within your company to gather data.

## Overview

This article will review the basics of cost-benefit analysis, followed by the organizational and infrastructure issues that must be considered before conducting a cost-benefit analysis. Simple equations for determining cost will be presented with a discussion of the issues practitioners need to consider when undertaking cost analysis. Additional time will be spent reviewing benefit models because of the complexity of valuing benefits and establishing benchmarks. A brief bibliography is provided for those who wish to explore this topic in greater depth.

## Definition

A variety of definitions of cost-benefit analysis exist. One of the simplest definitions is offered by Gramlich (1981) who states "ultimately, it is nothing more than a logical attempt to weigh the pros and cons of a decision." This is an excellent definition because it highlights two issues that must be addressed before undertaking a cost-benefit analysis.

First, practitioners should be clear about what decisions will be made as a result of this analysis. Cost-benefit analysis can assist management in making go, no-go decisions for programs, ranking the priority of programs based on return on investment ratios, or assessing the effectiveness of current programs. Second, practitioners need to decide how they will go about measuring or "weighting the pros and cons." Will strictly quantitative measures be used or will qualitative factors be assigned a monetary value and included?

## Considerations When Soliciting Partners for a Cost-Benefit Analysis

Adopting a cost-benefit program should not be a grass-roots decision. As the following sections will illustrate, cost-benefit analysis cannot be implemented as a unilateral decision. This kind of analysis requires the cooperation of other departments so your motivation needs to be broader than the desire to justify the cost of the training function. Training may be able to derive all the data needed to prepare an accurate cost analysis, but it is impossible to conduct a benefit analysis alone. Without the cooperation of other departments such as those from which your students are drawn, and those of accounting , human resources, and legal, you will not be able to access complete and reliable data. All of these departments need to be partners or sponsors of your initiative.

Attracting partners to sponsor a cost-benefit analysis maybe difficult in times of downsizing. The advantages to the training organization are obvious (justification of budget, better service to clients, improved decision making, etc.); the benefits to the study's partners are not as obvious. A question that training must be able to answer when soliciting potential partners is "what is in it for my partners?" The answer to this question will depend on your organization's infrastructure and culture, but must not be overlooked. Issues regarding infrastructure and culture should be kept in mind as you think about how you can collect data for your model.

Departments that partner or sponsor the training function's cost-benefit analysis project are making a large commitment of time and money. Functional department managers may be asked to do additional paperwork to

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document improvements in productivity or participate in a series of telephone surveys. Workers may need to spend time tracking their time and materials for multiple projects. This additional load may stress managers and workers who are already working long hours.

Partners are also needed to provide access to records, such as employee attrition, litigation costs, or the number of customer visits needed to close a sale. Access to databases, information systems, customized reports, or paper records is dependent on your organization's culture and infrastructure. Obtaining this kind of data presents several challenges in the area of infrastructure. Companies with extensive information management systems may have to develop customized reports to extract specific information. Many information systems departments are facing downsizing and may not be enthusiastic about creating new reports. The flexibility of the current infrastructure and the impact of added demands need to be considered.

### Culture and Infrastructure

Collecting the data needed to complete the cost part of the cost-benefit analysis model can come up against cultural issues. Depending on the culture of the organization, management may not have given thought to the total cost of training (e.g. taking an employee off the shop floor, a lost sales opportunity). This model calls attention to these issues and may result in management requesting more self-paced training or on-the-job training. Changes in delivery methods can trigger staffing issues related to headcount, skills, and equipment. Other issues include cultural taboos related to sharing information on salary ranges of consultants, students, or instructors.

Proprietary, strategic, competitive, or sensitive internal data is often needed to establish benchmarks to measure improvement. Sharing data about a department's performance requires that the participating department manager understands how this information will be used. Depending on the culture of the organization, departments may not be eager to share specific information such as the percent of rework, number of errors per pick-order, or average time per inbound phone call. Training's need for strategic information such as forecasts for the number of new hires, identification of target populations to be reskilled, and profit margins on products, need to be balanced against the firm's vital interests.

Organizations have differing levels of infrastructure or management information systems may be needed to complete the cost model. It may be difficult to determine the cost of a conference room on-site for a day; historic data may not be available to help one estimate the cost of developing a sixty minute computer-based training module. Depending on how the company's financial systems track expenses, information related to small expenses (travel, photo copying, etc.) may be difficult to collect. These cultural and infrastructure issues may make completing the cost model challenging. It is highly recommended that you check early with the accounting department or the company's financial analyst regarding the availability and access to key information. Partnered with other departments, you will find it is easier to acquire the data needed to arrive at the cost half of the equation.

### Cost Analysis Models

There are as many cost analysis models as there are authors and books on this subject. A review of the simple models (American Society for Training and Development, 1990; Hassett, 1992; Head & Buchanan, 1981; Weinstein, 1992) reveals that there are three basic cost categories found in these models: labor, material, and delivery. The model presented in Figure 1 is an example of a simple cost model. A second model developed by Head and Buchanan (1981) offers a more detailed series of factors and computations to arrive at costs. The model you choose will depend on the needs of your organization.

Other models not presented (Birdsall, 1987; Blomberg, 1989; Fabrycky & Blanchard, 1991; Gramlich, 1990; Ives & Forman, 1991; Kearsley, 1986) address even more cost factors such as interest rate, cash flow, net present value, and rate of discount. While it is beyond the scope of this article to address these models, it can be assumed that the same cultural and infrastructure issues would apply.

### Benefits Analysis Models

The literature on benefit models does not demonstrate the same degree of uniformity as we saw among cost models. A single-all purpose benefits model is not available. The lack of agreement is the result of a debate about how to assign value to intangible outcomes, with a resultant dollar value. Practitioners can look to the literature for categories (American Society for Training and Development, 1990; Hassett, 1992; Kirkpatrick, 1978; Sheppeck & Cohen, 1985; Weinstein, 1992) and for examples of program specific models (Birdsall, 1987; Tingley & Pine 1993) from which to develop models.

Your firm's unique workforce planning issues, market environment, and product/service make it highly desirable that a you work in partnership with other departments to build your own model. Building a benefit model requires that training and its partners reach consensus on a position regarding intangible benefits. The literature presents debates over the issue of intangible benefits — should they be ignored or assigned a monetary value. Levine (1983) argues that "there

**Figure 1.** Cost model presented by Info-Line (1990)

| | | |
|---|---|---|
| Full labor Cost | = | (Annual salary + benefits + overhead)/260 days worked per year |
| Material Cost | = | (Audiovisual aids + production costs ) |
| Delivery Cost | = | (Inst. (I)/student(S) full labor + I/S travel + conference rooms + refreshments) |
| Total Expenditures | | |



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**Figure 2.** Cost model developed by Head and Buchanan (1981)

| S' | + | I' | + | F' | + | A' | + | ID' | = | CTS |
|---|---|---|---|---|---|---|---|---|---|---|
| Total Student Costs | | Total Instructor Costs | | Total Facility Costs | | Total Administrative Cost | | Total Instructional Development Costs | = | Total Corporate Training Cost |

are no fully acceptable methods for determining monetary value to society of ...less than tangible benefits... However, it is believed that the major outcome can be valued in monetary terms, and adjustments can be made in the calculation for taking account of ...those outcomes whose translation into monetary measure is problematic" (1983, p.109). Info Line takes a more conservative approach and suggests that "intangible benefits cannot be described by a dollar amount or other measure and therefore should not be included in a benefit analysis" (1990, p. 12). The culture of your organization will determine if intangible benefits are given a monetary value.

There is a great deal of agreement (Blomberg, 1989; American Society for Training and Development, 1990; Hassett, 1992; Ives & Forman, 1991) regarding the categories from which tangible benefits from training can be derived. Benefits of education can be measured as increases in production, decreases in cost, and gains in revenue. The following examples illustrate the type of activities which may be measured but there is no fixed formula for developing a benefits model. You should think about how your training program increases production, decreases cost, and/or produces gains in revenue.

Intangible Benefits From Training

Increased production due to:

- Improving employees' ability to use new software such as e-mail or database applications
- Increasing managers' and workers' ability to apply TQM principles
- Cross-training employees to provide back-up phone support during times of peak inbound telephone volume

Decreased cost for :

- Litigation expenses due to wrongful dismissal
- Workmen's compensation claims due to unsafe work conditions
- Repairs to equipment due to misuse

Revenue gain by developing :

- Telemarketing agents' ability to cross-sell additional products
- Collections agents' ability to gain commitment for payment
- Account executives' ability to close a sale

Once you and your sponsor(s) have determined how to deal with intangible benefits and have identified the categories and the specific benefits of training, you are ready to undertake the initial steps needed to assess value. But before beginning to assess the value of intangible benefits, the practitioner will need to work as part of a team to document assumptions upon which the model is built. Most benefit models will address assumptions about the pay back period, (the period over which the benefits of increased productivity are attributed to training), and the initial benchmarks (how will you determine the skill level against which you will be measuring improved performance). Agreement on these and other assumptions is important when the results of the cost-benefits analysis are presented and open for questioning.

Assessing the value of tangible or intangible benefits is one of the most difficult steps in the cost-benefit analysis study — and here the partnership with other departments is critical. The value of benefits must be determined in partnership with departments that have the data required to calculate the benefits and can validate the model. The challenge of placing a dollar value on the results of training varies. The level of difficulty in assessing value is dependent on the kind of skills to which you are seeking to assign value, and your ability to correct for variables. Improved safety record, or reduced litigation costs are easier to measure than improved quality or better customer service.

It is important to work with your partners to determine what percentage of the change in performance is due to training versus internal and external factors such as a new promotional campaign, changes in the market, seasonal variations, or a competitor's new marketing campaign. An example of this would be working with your partners to explain an unexpected plateau in prospecting for new sales leads after a sales prospecting training program. Division partners are more likely to be aware of things like a competitor's promotional programs for migrating your customer base. These kind of external factors can adversely affect your data and be difficult to account for unless you are working with partners who have visibility to the company's competitive environment.

Soft skills, like time management, team building, and communications are difficult to value and require even more reliance on your partnership. Reaching consensus with other departments is essential to building a connection between soft skills and a percentage of financial improvement. A more quantitative measure of the value of these programs can be developed by conducting a controlled experiment. Pine and Tingley's (1993) article "ROI of soft skills" an excellent description of what this kind of quantitative measure requires. In this study they randomly divided work teams into two groups. One group was given team training and training was withheld from the control group. Over a period of time the productivity of the groups was tracked, measured, and compared. The result of this study was a quantifiable



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demonstration of the value of team building. This article is an excellent demonstration of the need for a strong partnership. The study was only possible because a department was willing to participate in a longitudinal study that required a randomized sample, and the tracking and measuring of work group performance.

A detailed benefit model is not possible, due to the number of possible variations. Each of the factors in the benefit model in Figure 3 is dependent on the culture and infrastructure of your organization. Decisions regarding accounting for intangible benefits will be dependent on your company's culture. Tangible benefits will depend on how clearly you define the benefits of training and how well you relate them to the bottom line. The validity of your model will be strengthened by the buy-in of partners.

**Figure 3.** General benefits model

**(Intangible Benefits + Tangible Benefits) X (Payback Period) = Value of Benefits**

Summary

There are two steps that must be taken before conducting a cost-benefit analysis study. First, assess your organization's culture and infrastructure. Identify the norms, and the information systems that exist to assist you in completing your model. Second, identify potential partners from divisions within you company who are willing to support you in gathering data. Understanding these issues will make it easier to plan a successful cost-benefit analysis which is valued by your organization.

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